

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

REMARKS

Claim 1-21 are pending in this application. Claims 1-3, 7 and 9-21 stand rejected under 35 USC 102(b) as being anticipated by Becker (6,152,724). Claims 1-3 and 7-21 stand rejected under 35 USC 103(a) as being unpatentable over Becker 6,152,724) in view of Becker (5,451,160). Claims 1-3 and 7-21 stand rejected under 35 USC 103(a) as being unpatentable over Poeschl in view of Becker (6,152,724). Claims 4-6 stand rejected under 35 USC 103(a) as being unpatentable over Becker 6,152,724) in view of either Zappa or Gutmark.

Claims 8 and 17 are cancelled herein.

Independent claims 1 and 21 have been amended herein to clarify that the air blocking member cooperates with the fuel inlet to produce a locally enriched fuel mixture which generates a locally higher combustion temperature effective to suppress a formation of combustion vibrations and to reduce an amount of carbon monoxide produced during combustion when compared to combustion in said burner apparatus with no such air blocking member.

Becker '724 teaches away from this combination of limitations. In particular, Becker '724 states in column 2, lines 60-65 that "It goes without saying that the mixer for intermixing the fuel with the flow must be configured for the requisite homogeneity of the mixture produced. It may be necessary to correspondingly reduce the feed of fuel to the delayed portion of the flow compared with the feed to the outer portions of the flow." He accomplishes this in column 5, lines 62-65 where "The dimensions of the nozzles 11 and 12 are to be selected in such a way that a largely homogeneous distribution of the fuel in the flow is achieved and thus combustion having as low a production of nitrous oxide as possible is ensured."

Becker '724 is only concerned about nitrous oxide, whereas the present invention also addresses the issue of carbon monoxide production. Becker '724 purposefully drives the air-fuel mixture to be homogeneous - which directly teaches away from the present invention, which drives the air-fuel mixture to have a locally enriched region. The present invention makes use of a locally higher combustion temperature, whereas Becker '724 states at column 3, lines 8-10 that "...an increase in the maximum temperature during the combustion does not occur..."

Because Becker '724 teaches away from the present invention, there is no *prima facie*

2001P04429WOUS OAR Dec 2005

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basis for the rejection of any claim on the basis of that reference. The Examiner argues that the term "largely homogenous" implies local areas of inhomogeneous mixture. However, it must be appreciated that no air-fuel mixture in a burner is perfectly homogenous, and that the term "largely homogeneous" in Becker should be interpreted to refer to a mixture wherein the variation in mixture has no significant effect on the combustion process. This is directly opposed to the present invention. Becker '724 is purposefully designing a burner to have a largely homogenous mixture, meaning that the maximum temperature is not increased, as quoted above. The claims pending in the present application have been amended to include limitations making it clear that the locally enriched region does have a significant effect on the combustion process; i.e. that it is effective to suppress combustion vibrations and to reduce the production of carbon monoxide.

Furthermore, the secondary reference by Poeschl also teaches away from the present invention. At column 2, lines 65-67, Poeschl states that "An essential advantage of the invention lies in the fact that especially effective mixing of combustion air and fuel can be achieved by the turbulent flow of the combustion air..." At column 3, line 44, Poeschl describes his device as having "...the effect of especially intensive intermixing." Thus, it is physically impossible for the device of Poeschl to produce the locally enriched region of the present invention, and Poeschl also fails to provide a *prima facie* basis for the rejection of the present claims.

Accordingly, independent claim 1 and its dependent claims 2-7, 9-16 and 18-20, as well as independent claim 21, are believed to be in condition for allowance.

New independent claim 22 has been added containing the limitations of an air blocking member locally blocking the flow of air upstream of the fuel inlet so that a fuel-air mixture produced at an outlet of the premixing chamber is generally homogeneous except for a discrete region affected by the air blocking member wherein a higher concentration of fuel to air is generated; and ... wherein combustion of the discrete region of higher concentration of fuel to air produces a region of locally higher combustion temperature effective to suppress a formation of combustion vibrations and to reduce an amount of carbon monoxide produced during combustion when compared to combustion in said burner apparatus with no such air blocking

2001P04429WOUS OAR Dec 2005

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

member. Nothing in the cited prior art teaches or suggests this combination of limitations. Furthermore, Becker '724 and Poeschl teach away from these limitations. Thus, claim 22 is believed to be in condition for allowance.

New claim 23 has been added to depend from claim 22 and to add the limitations of a recirculation zone established in the combustion chamber, and the air blocking member being disposed such that the region of locally higher combustion temperature at least partially enters the recirculation zone. No such physical relationship of a locally hot zone of combustion and a recirculation zone is found in the cited prior art. Thus, claim 23 is also believed to be in condition for allowance.

Conclusion

Applicant respectfully requests that the Examiner timely pass the application to allowance, including claims 1-7, 9-16 and 18-23. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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2001P04429WOUS OAR Dec 2005